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Temporal trend in antimicrobial requiring gastrointestinal diseases in Danish finisher herds, 2002-07

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Introduction

Gastrointestinal (GI) diseases related to pathogens with endemic occurrence have great impact on pig production not only by compromising animal welfare and reducing productivity, but also by being the most antimicrobial (AM) demanding group of diseases. In Denmark, AM is through legislation solely prescribed for therapeutic usage and can therefore be used as a proxy for GI disease.

Objective

was to evaluate the temporal trend in GI diseases in Danish herds with finishers on national level.

Material & methods

Information on usage of AM and herd size for the period 2002-07 was extracted from the Danish register of Veterinary Medicine and the Zoonosis Register. The study population was herds with finishers (Table 1). Herd size was described by number of finishers delivered to abattoir. The development of AM-requiring GI-disease was defined by number of herds with prescriptions and by amount of AM in Animal Daily Doses (ADD)[1] per finisher per quarter per year. Decomposition of data on trend, season and residuals using loess regression[2] was performed.

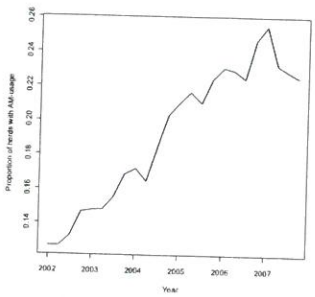

Fig 1. Proportion of herds with AM-usage vs. time.

Results

The proportion of finisher herds per quarter with AM-usage for GI-diseases has doubled from 0.13 in 2002 to 0.25 in 2007 (Fig. 1). An increase in ADD-usage appeared from 1.0 in 2002 1st qtr to 1.4 in 2003 2nd qtr (spring); hereafter it was relative stable (Fig. 2). A small seasonal variation with a drop in spring was found.

Table 1. Number of herds with deliveries and number of delivered finishers to Danish abattoirs, 2002-07.

Year	2002	2003	2004	2005	2006	2007
Herds	14086	13213	12119	10990	9660	8613
Finishers(10^6)	22.6	20.2	21.1	20.7	19.4	19.1

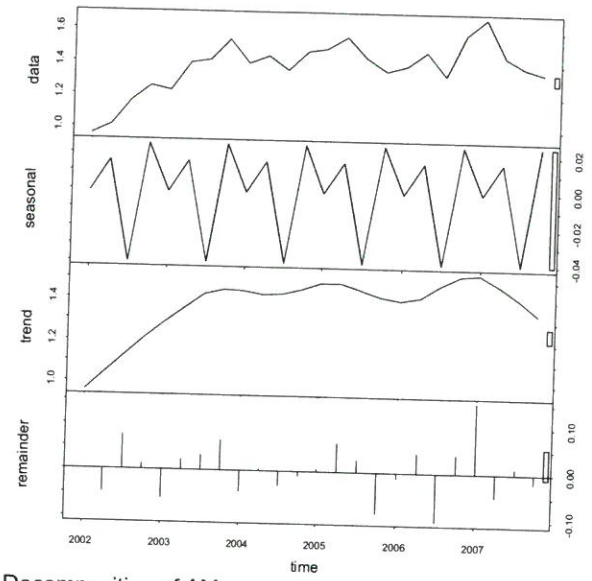

Fig 2. Decomposition of AM-usage into trend, season and residuals.

Discussion

The increasing proportion of herds with AM-usage and a relatively stable AM-usage per finisher over the years can be explained by a concentration of finishers into fewer herds with larger herd size; a development in production type from integrated to more sectioned systems as well as better bio security and hygiene, reducing the transmission and thereby the burden of disease; and a more targeted treatment-strategy due to e.g. increased supervision by veterinarians. More accurate and systematic recordings could also have influenced the results. By using deliveries to Danish abattoirs as proxy, finishers slaughtered abroad were excluded from the analyses. As an increasing percentage were exported (1.9 % in 2004 to 4.5 % in 2007[3]), this can bias the results with a false higher amount of add per finisher in the more recent years.

Conclusion

During the period, AM-requiring GI-diseases in finishers have not increased on national level but are distributed to a larger proportion of herds. This study is an example of decomposing register data for assessing temporal trends.

References

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